

CLAIMS

1. A pump for pumping fluid in a vehicle while contained within a transmission, transfer case or engine reservoir of a vehicle, said pump comprising:

a pump housing having a pump element;

5 an electric motor operatively attached to said pump housing;

a pumping chamber;

a pump element operatively coupled to said electric motor;

said pump chamber including an intake and an exit port therein for receiving fluid from said reservoir and pumping fluid;

10 at least one intake or exhaust port derived from porting configured in a surface adjacent to and not part of the pump.

2. The pump of claim 1 wherein there is a wall separating the motor from the pumping chamber and said wall includes an inlet or outlet port from said chamber.

15

3. The pump of claim 1 wherein an inlet or outlet porting is provided into said pumping chamber in an existing fixture of a transmission, transfer case or oil pan of a vehicle.

20

4. The pump of claim 3 wherein a port plate is provided between the pump housing for providing pump porting between the pump chamber, said inlet or outlet porting in said fixture of said transmission, transfer case or oil pan.

5. The pump of claim 4 wherein said port plate is an integral part of said housing.

6. The pump of claim 5 wherein said port plate is a portion of valve manifold
5 plate for placement of said pump onto a valve manifold of a transmission.

7. The pump of claim 1 wherein the pump housing is an integral part of a valve manifold of a transmission.

10 8. The pump of claim 2 wherein said wall includes an inlet for pumping fluid through said motor.

9. The fluid pump of claim 1 wherein said motor pump is brushless.

15 10. The pump of claim 1 wherein said pump element is selected from a gerotor set, piston, spur gear, vane, crescent centrifugal, turbine, regenerative type pump element.

20 11. The pump of claim 10 wherein the pump element is mounted on an armature shaft of said motor.

12. The pump of claim 1 wherein said motor further comprises an outer armature stator with a series of coils therein and an inner armature which is magnetically biased for self-centering of the armature in the stator.

13. The pump of claim 12 wherein a bearing is provided for said armature and the stator is mounted in said housing for biasing the armature toward the bearing.

5 14. The pump of claim 12 wherein a bearing is provided for said armature and said stator is positioned for keeping said armature off of said bearing.

10 15. The pump of claim 12 wherein said armature includes a plurality of peripheral magnets separated by a space in between wherein the spaces in between are full to prevent windage of said armature.

16. The pump of claim 12 wherein said armature includes a polarized full round magnet for reducing windage.

15 17. The pump of claim 1 wherein the pump is adapted for responding to on demand requirements of the engine, transmission or transfer case.

18. The pump of claim 17 wherein the on demand requirement is keeping the transmission charged during engine off conditions.

20

19. The pump of claim 1 wherein the pump is fully submerged in the fluid in said reservoir.

0997774-101501
F05707-422660